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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
AGUSTIN, PETER VINCENT	
ART UNIT	**PAPER NUMBER**
2652	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/987,384	INOKUCHI ET AL.	
	Examiner	Art Unit	
	Peter Vincent M Agustin	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 14 November 2001 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 8 & 9A-9F should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors, e.g.

Page 14, line 15: "CPU244" should be --CPU 244--.

Page 30, line 10: "an balance" should be --a balance--.

Page 31, line 12: "amplitudesof" should be --amplitudes of--.

Page 31, line 21: "an first" should be --a first--.

Page 31, line 21: "an second" should be --a second--.

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

5. Claims 1-7 are objected to because: the limitations "the first detection signal" and "the second detection signal" are recited on the third paragraph of claim 1 and the second paragraph of claim 8. There is insufficient antecedent basis for these limitations in the claim.

6. Claim 5 recites the limitation "the jitter amount" on line 9. There is insufficient antecedent basis for this limitation in the claim.

7. Claims 2-4, 6 & 7 are objected to because these claims are dependent upon base claim 1.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1 & 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata et al. (hereafter Ogata) (US 5,696,742) in view of Hayashi et al. (hereafter Hayashi) (US 5,610,886).

Ogata discloses an optical apparatus (figure 5) for reading address information from an optical disc (figure 5, element 1) which has tracks (figure 2a, element 3) for recording info and track spaces (figure 2a, element 4), formed between said tracks, on which the address information to identify a position on said optical disc is recorded, said optical apparatus comprising: an optical head (figure 5, element 10) for irradiating the optical disc with light, said optical head including tracking detectors (43) divided into a

first detector (43a) and a second detector (43b) along said tracks, each detector detecting reflecting light from the optical disc and outputting a detection signal, an address detection differential amplifying circuit (22) for outputting an address detection differential signal which is a difference between the first detection signal and the second detection signal, and an address detecting circuit (26) for detecting the address information based on the address detection differential signal outputted from the address detection differential amplifying circuit. However, Ogata does not disclose a balance adjusting circuit for address detection for receiving the first detection signal outputted by the first detector and the second detection signal outputted by the second detector to adjust amplitudes of the first detection signal and the second detection signal and outputting an adjusted first detection signal and an adjusted second detection signal, respectively, at a position where the address information is recorded. Furthermore, Ogata does not disclose an amplitude detecting circuit for detecting amplitudes of the first detection signal and the second detection signal, and said balance adjusting circuit for address detection adjusting amplitudes of the first detection signal and the second detection signal to become substantially equal based on the amplitudes of the first detection signal and the second detection signal detected by the amplitude detecting circuit, and outputting the first detection signal and the second detection signal.

Hayashi inherently discloses (column 8, line 60 thru column 9, line 9) a balance adjusting circuit and an amplitude detecting circuit. An amplitude detecting circuit is inherent from column 8, line 63, when the amplitude of an RF signal is varied. A balance

adjusting circuit is provided in order to set the two levels of an RFRP signal equal to each other. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have provided the amplitude detecting circuit and the balance adjusting circuit of Hayashi to the apparatus of Ogata in order to detect the amplitudes of the first and second detection signals and to adjust the amplitudes of the first and second detection signals to become substantially equal, thereby minimizing the detected tracking error and increasing recording reliability.

10. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata & Hayashi as applied to claim 1 above, and further in view of Kamikawa (JP 02118923 A).

For a description of Ogata & Hayashi, see the rejection above. Ogata & Hayashi, however, do not disclose a detecting section for detecting a reading ratio of the address information, and said balance adjusting circuit for address detection adjusting amplitudes of the first detection signal and the second detection signal to maximize the reading ratio detected by the detecting section.

Kamikawa inherently discloses a detecting section for detecting a reading ratio of the address information (see abstract). The ratio of two photodetector outputs is varied until the optimum ratio is obtained, i.e., the ratio that maximizes the amplitude of an RF signal, in order to obtain focusing balance. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have used the detecting section for detecting a reading ratio of Kamikawa to adjust the amplitudes of the first detection and second detection signals of Ogata & Hayashi, in order to maximize the reading ratio detected by the detecting section of Kamikawa, the motivation being to

obtain tracking balance, thereby minimizing the tracking error and increasing recording reliability.

11. Claims 1, 2 & 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoi et al. (hereafter Yokoi) (US 6,487,149) in view of Hayashi.

In regard to claim 1, Yokoi discloses an optical apparatus (figure 1) for reading address information from an optical disc which has tracks for recording information and track spaces, formed between said tracks, on which the address information to identify a position on said optical disc is recorded, said optical apparatus comprising: an optical head (figure 1, element 5) for irradiating the optical disc with light, said optical head including tracking detectors (A thru D) divided into a first detector (A & B) and a second detector (C & D) along said tracks (TT), each detector detecting reflecting light from the optical disc and outputting a detection signal, an address detection differential amplifying circuit for outputting an address detection differential signal which is a difference between the first detection signal and the second detection signal (see element 6 and arrow input to element 10 labeled (A+B)-(C+D)), and an address detecting circuit (11) for detecting the address information based on the address detection differential signal outputted from the address detection differential amplifying circuit. Furthermore, in regard to claim 4, Yokoi discloses that the optical disc has wobbles formed in the radial direction at a predetermined cycle to be used for controlling rotation of the optical disc (column 1, lines 13-21), and said apparatus further comprising: a wobble detection differential amplifying circuit for outputting a wobble detection differential signal, which is a difference between the first detection signal and

the second detection signal (see element 6 and arrow input to element 13 labeled (A+B)-(C+D)), and a wobble signal detection circuit (13) for detecting the wobble based on the wobble detection differential signal outputted from the wobble detection differential amplifying circuit. However, Yokoi does not disclose a balance adjusting circuit for address detection for receiving the first detection signal outputted by the first detector and the second detection signal outputted by the second detector, said adjusting circuit adjusting amplitudes of the first detection signal and the second detection signal and outputting an adjusted first detection signal and an adjusted second detection signal, respectively, at a position where the address information is recorded (claim 1); an amplitude detecting circuit for detecting amplitudes of the first detection signal and the second detection signal, said balance adjusting circuit for address detection adjusting amplitudes of the first detection signal and the second detection signal to become substantially equal based on the amplitudes of the first detection signal and the second detection signal detected by the amplitude detecting circuit, and outputting the first detection signal and the second detection signal (claim 2); and a balance adjusting circuit for wobble detection for receiving the first detection signal and the second detection signal, adjusting signal levels of the first detection signal and the second detection signal to be substantially equal, and outputting a first adjusted detection signal and a second adjusted detection signal (claim 4).

Hayashi inherently discloses (column 8, line 60 thru column 9, line 9) a balance adjusting circuit and an amplitude detecting circuit. An amplitude detecting circuit is inherent from column 8, line 63, when the amplitude of an RF signal is varied. A balance

adjusting circuit is provided in order to set the two levels of an RFRP signal equal to each other. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have provided the amplitude detecting circuit and the balance adjusting circuit of Hayashi to the apparatus of Ogata in order to detect the amplitudes of the first and second detection signals and to adjust the amplitudes of the first and second detection signals to become substantially equal, thereby minimizing the detected tracking error and increasing recording reliability.

12. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoi & Hayashi as applied to claim 4 above, and further in view of Nakajo (US 6,643,239).

For a description of Yokoi & Hayashi, see the rejection above. Furthermore, Yokoi & Hayashi disclose that the balance adjusting circuit for wobble detection adjusts the signal level of the first detection signal and the signal level of the second detection signal (as noted on the claim 4 rejection). Yokoi & Hayashi do not disclose that the balance adjusting circuit minimizes the jitter amount based on the jitter amount of the wobble detected by the wobble signal detection circuit.

Nakajo (column 15, lines 5-25) discloses that the jitter amount is at its smallest value when optimum tracking servo balance exists. It should be noted that tracking servo balance is achieved by adjusting the variable resistor VR2 shown on figure 12, denoting the presence of a balance adjusting circuit. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have designed the balance adjusting circuit of Yokoi & Hayashi to minimize the jitter amount as suggested

by Nakajo, the motivation being to obtain optimum tracking servo balance, thereby increasing recording reliability.

13. Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoi & Hayashi as applied to claim 4 above, and further in view of Kamikawa.

For a description of Yokoi & Hayashi, see the rejection above. Yokoi & Hayashi, however, do not disclose a detection section for detecting a reading ratio of the address information, and said balance adjusting circuit for wobble detection adjusting the signal levels of the first detection signal and the second detection signal in such a manner that the reading ratio detected by the detection section becomes a maximum.

Kamikawa inherently discloses a detecting section for detecting a reading ratio of the address information (see abstract). The ratio of two photodetector outputs is varied until the optimum ratio is obtained, i.e., the ratio that maximizes the amplitude of an RF signal, in order to obtain focusing balance. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have used the detecting section for detecting a reading ratio of Kamikawa to adjust the amplitudes of the first detection and second detection signals of Yokoi & Hayashi, in order to maximize the reading ratio detected by the detecting section of Kamikawa, the motivation being to obtain tracking balance, thereby minimizing the tracking error and increasing recording reliability.

14. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Yokoi & Hayashi as applied to claim 4 above, and further in view of Dohmeier et al. (hereafter Dohmeier) (US 5,491,682).

For a description of Yokoi & Hayashi, see the rejection above. However, Yokoi & Hayashi do not disclose a gain control circuit for making amplitudes of the first detection signal and the second detection signal constant.

Dohmeier discloses a gain control circuit (figure 4, element 166) for making the amplitude of the second detection signal (output from element 158) constant (see also column 12, lines 35-48 for an embodiment having both first and second detection signals amplified). It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have added the gain control circuit of Dohmeier to the apparatus of Yokoi & Hayashi, the motivation being to reduce noise caused by tracking errors.

15. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Ogata in view of Hayashi.

Ogata discloses a method for reading the address information from an optical disc (figure 5, element 1) which has tracks (figure 2a, element 3) for recording information and track spaces (figure 2a, element 4), formed between the tracks, on which the address information to identify the position on said optical disc is recorded, said method comprising steps of: irradiating the optical disc with light (inherent from figure 5, element 10), detecting the reflected light (inherent from 43, 43a & 43b) from the optical disc and outputting a detection signal detected by tracking detectors (43) divided into a first detector (43a) and a second detector (43b) in the track direction, receiving the first detection signal (inherent from 43a) outputted by the first detector and the second detection signal (inherent from 43b) outputted by the second detector,

outputting an address detection differential signal (inherent from 22) which is a difference between the first detection signal and the second detection signal, and detecting the address information based on the address detection differential signal outputted (inherent from 26). However, Ogata does not disclose the steps of adjusting the amplitudes of the first detection signal and the second detection signal, and outputting an adjusted first detection signal and an adjusted second detection signal.

Hayashi discloses (column 8, line 60 thru column 9, line 9) adjusting the amplitudes (levels) of the RFRP so that the levels equal each other, and outputting the adjusted RFRP (inherent). It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to have included the steps of adjusting the amplitudes and outputting the adjusted first and second detection signals of Ogata as suggested by Hayashi. The motivation would have been to make the amplitudes of the first and second detection signals substantially equal, thereby minimizing the detected tracking error and increasing recording reliability.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Onigata et al. (US 5,508,991) discloses a tracking error correction technique for optical heads in different modes of operation. Figure 8 shows a subtractor that takes the difference between two detected signals, a gain control circuit, and a wobble signal reproduction circuit.

Iimura (US 5,936,921) discloses an optical disc apparatus for recording the RF signal component in a difference signal containing both speed and time information. The apparatus includes a wobble signal detection unit.

Furumiya et al. (US 6,195,320) discloses an optical apparatus having a differential amplifier that takes the difference between two signals derived from an optical pickup.

Yanasigawa et al. (US 6,563,773) discloses a tracking control apparatus with a detecting device having four separate detectors and an amplitude-comparing device to determine the gain based on the difference of the signals.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Vincent M Agustin whose telephone number is (703) 305-8980. The examiner can normally be reached on Monday thru Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. R. YOUNG
PRIMARY EXAMINER

PVA
02/26/2004